Claims:

1. A magnetic bias film including a magnetic bias magnet that has magnetic layers and generates a magnetic field within a plane perpendicular to a lamination direction of the magnetic layers, wherein:

the magnetic bias magnet is manufactured in a shape of substantially a rectangular prism having a long side, a short side, and a thickness in the lamination direction in order of decreasing lengths while a ratio of the long side with respect to the short side in length is in a range of 5 to 200.

2. The magnetic bias film according to Claim 1, wherein:

plural magnetic bias magnets are disposed in a short side direction.

3. The magnetic bias film according to Claim 1 or 2, wherein:

the magnetic bias magnet further includes a non-magnetic layer, and two or more magnetic layers and one or two or more non-magnetic layers are laminated alternately.

4. The magnetic bias film according to Claim 3, wherein:

the non-magnetic layer is made of one of Cr, Ti, Cu, Al, Sn, Nb, Au, Ag, Ta, and W.

5. The magnetic bias film according to Claim 3 or 4, wherein:

a thickness of the non-magnetic layer is in a range of 50 Å to 500 Å.

6. The magnetic bias film according to any of Claims 1 through 5, wherein:

a direction of the magnetic field generated by the magnetic bias magnet is in a long side direction.

7. The magnetic bias film according to any of Claims 3 through 5, wherein:

a direction of the magnetic field generated by the magnetic bias magnet is in a short side direction.

8. The magnetic bias film according to any of Claims 1 through 7, wherein:

the magnetic layers are made of one of CoPt alloy, CoCr alloy, CoCrPt alloy, and ferrite magnet.

9. The magnetic bias film according to any of Claims 1 through 8, wherein:

a thickness of the magnetic layers is in a range of 250 Å to 2500 Å.

10. The magnetic bias film according to any of Claims 1 through 9, wherein:

the number of the magnetic layers is an odd number.

11. The magnetic bias film according to any of Claims 1 through 10, wherein:

strength of the generated magnetic field is 5 Oe or higher and 20 Oe or lower.

12. The magnetic bias film according to any of Claims 1 through 11, wherein:

magnetic anisotropy is provided to the magnetic layers as the magnetic layers are formed while a magnetic field is applied in one direction within the plane perpendicular to the lamination direction of the magnetic layers.

13. The magnetic bias film according to any of Claims 1 through 12, wherein:

magnetic anisotropy is provided to the magnetic layers as heat treatment is applied to the magnetic bias magnet at a specific temperature while a magnetic field is applied in one direction within the plane perpendicular to the lamination direction of the magnetic layers.

14. A magnetic sensor, comprising:

a substrate;

a first magnetic detection portion provided with at least two magnetic detecting elements formed on a main surface side of the substrate;

a second magnetic detection portion provided with at least two magnetic detecting elements formed on the main surface side of the substrate;

a first magnetic bias film provided at a position opposing the first magnetic detection portion; and

a second magnetic bias film provided at a position opposing the second magnetic detection portion,

wherein the first and second magnetic bias films are the magnetic bias film according to any of Claims 1 through 13, and an orientation of a magnetic field generated by the first magnetic bias film and an orientation of a magnetic field generated by the second magnetic bias film are different.

15. The magnetic sensor according to Claim 14, further comprising:

an insulation film that covers at least one of the first magnetic detection portion and the second magnetic detection portion.

16. The magnetic sensor according to Claim 14 or 15, wherein the first magnetic detection portion includes:

a first magnetic detecting element;

a second magnetic detecting element that has a longitudinal direction of a pattern different from a longitudinal direction of a pattern of the first magnetic detecting element, and is electrically connected to the first magnetic detection portion in series;

a third magnetic detecting element that has a longitudinal direction of a pattern parallel to the longitudinal direction of the pattern of the second magnetic detecting element; and

a fourth magnetic detecting element that has a longitudinal direction of a pattern parallel to the longitudinal direction of the pattern of the first magnetic detecting element, and is electrically connected to the third magnetic detection portion in series,

the first magnetic detecting element and the second magnetic detecting element being electrically connected to the third magnetic detecting element and the fourth magnetic detecting element in parallel, and

wherein the second magnetic detection portion includes:

a fifth magnetic detecting element;

a sixth magnetic detecting element that has a longitudinal direction of a pattern different from a longitudinal direction of a pattern of the fifth magnetic detecting element, and is electrically connected to the fifth

magnetic detection portion in series;

a seventh magnetic detecting element that has a longitudinal direction of a pattern parallel to the longitudinal direction of the pattern of the sixth magnetic detecting element; and

an eighth magnetic detecting element that has a longitudinal direction of a pattern parallel to the longitudinal direction of the pattern of the fifth magnetic detecting element, and is electrically connected to the seventh magnetic detection portion in series,

the fifth magnetic detecting element and the sixth magnetic detecting element being electrically connected to the seventh magnetic detecting element and the eighth magnetic detecting element in parallel.

17. The magnetic sensor according to Claim 16, wherein:

an angle produced by an orientation of a magnetic field generated by the first magnetic bias film and an orientation of a magnetic field generated by the second magnetic bias film is 90°, an angle produced by the longitudinal direction of the pattern of the first magnetic detecting element and the longitudinal direction of the pattern of the second magnetic detecting element is 90°, and an angle produced by the longitudinal direction of the pattern of the fifth magnetic detecting element and the longitudinal direction of the pattern

of the sixth magnetic detecting element is 90°.

18. The magnetic sensor according to Claim 17, wherein:

an angle produced by an orientation of a magnetic field generated by the first magnetic bias film and the longitudinal direction of the pattern of the first magnetic detecting element is 45°; and

an angle produced by an orientation of a magnetic field generated by the second magnetic bias film and the longitudinal direction of the pattern of the fifth magnetic detecting element is 45°.

19. The magnetic sensor according to Claim 14 or 15, wherein the first magnetic detection portion includes:

a first magnetic detecting element; and

a second magnetic detecting element that has a longitudinal direction of a pattern different from a longitudinal direction of a pattern of the first magnetic detecting element, and is electrically connected to the first magnetic detection portion in series, and

wherein the second magnetic detection portion includes:

a third magnetic detecting element; and

a fourth magnetic detecting element that has a longitudinal direction of a pattern different from a

longitudinal direction of a pattern of the third magnetic detecting element, and is electrically connected to the third magnetic detection portion in series.

20. The magnetic sensor according to any of Claims 14 through 19, wherein:

the magnetic detecting elements are formed of a magnetic film including NiCo or NiFe.

21. The magnetic sensor according to any of Claims 14 through 20, wherein:

the insulation film is made of SiO_2.